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As originally planned, this issue was to have 54 pages of text. Their number was successively reduced to 40 and 36, and we now present a residual 8. Nor are all of them those we should have chosen had our choice been free. We can only beg our readers to remain indulgent during the further weeks, months, or years required for settlement of the dispute that is again immobilising London printers.

Hæmagglutination Test for Tuberculosis

A SEROLOGICAL test for tuberculous infection as reliable as the Wassermann reaction in syphilis would be of immense value to the clinician, but despite the multitude of agglutination, complement-fixation, and precipitin methods devised in the last 50 years none has proved wholly satisfactory. Two years ago MIDDLEBROOK and DUBOS[1] introduced a hæmagglutination test which they claimed could detect small amounts of antibody produced against one or more of the polysaccharide antigens in mammalian strains of the tubercle bacillus. Washed red cells from the sheep are sensitised with an active antigenic fraction from an extract of the tubercle bacillus or from commercial preparations of old tuberculin. The sensitised cells are then added to dilutions of inactivated serum from the patient; if the test is positive the sheep cells are agglutinated and when shaken appear as clumps in the supernatant fluid. A complication is that all heterophile antibody must be removed from the serum before adding it to the sensitised cells.

The Middlebrook-Dubos test has been tried by several workers here and in France, and ROTHBARD[2] and associates in the United States obtained negative results in 203 of 216 non-tuberculous patients, whereas 155 out of 168 cases of active tuberculosis gave positive hæmagglutination in titres of 1:8 to 1:512. Monthly tests on 120 tuberculous patients showed a gradual disappearance of antibodies with clinical improvement. These findings suggest that the test would be highly valuable in active tuberculosis, but those of SMITH and SCOTT[3] are less encouraging. They found agglutinins in 83 out of 104 sera from phthisical patients with tubercle bacilli in the sputum and in 6 whose sputum was clear, the negative sera mostly coming from patients with advanced disease and a poor prognosis. Most of the few tests done on patients with arrested tuberculosis were negative, as were 18 out of 22 on syphilitic patients. They have also investigated the relation of the test to tuberculin sensitivity. Half of 70 healthy tuberculin-positive people gave positive hæmagglutination reactions, and nearly a third of 68 healthy students developed hæmagglutinins after their first tuberculin test. Similarly, out of 13 students inoculated with B.C.G., 10 developed hæmagglutinins, though all 13 gave positive tuberculin reactions.

The finding of hæmagglutinin clearly does not prove that active infection is present, though MIDDLEBROOK[4] suggests that with a reliable antigen a serum titre of 1:8 or higher is presumptive evidence of disease caused by the tubercle bacillus or an antigenically related mycobacterium. Apparently the reaction does not measure either the patient's resistance to tuberculosis or the activity of the tuberculous process, and the possibility of false-positive or false-negative reactions has yet to be eliminated. For the present, at least, the test will not take the place of isolation and identification of the infecting organism, which in tuberculosis, as in other infectious diseases, is by far the surest method of diagnosis.

1. Middlebrook, G., Dubos, R. *J. exp. Med.* 1948, **88**, 521.
2. Rothbard, S., Dooneiff, A. S., Hite, K. E. *Proc. Soc. exp. Biol., N.Y.* 1950, **74**, 72.
3. Smith, D. T., Scott, N. B. *Amer. Rev. Tuberc.* 1950, **62**, 121.
4. Middlebrook, G. *Ibid*, p. 223.

Annotations

THE REPRESENTATIVE MEETING

Two urgent problems facing the British Medical Association—first, the work and status of the general practitioner, and secondly the position of the association itself in these changed days—were brought into sharp relief last week when the annual meeting of representatives, adjourned from Southport,[1] was completed in London.

The association will evidently have a stiff fight in its campaign to gain more beds for general practitioners. A North-Country representative reported continuing displacement of practitioners from hospital posts; while a London spokesman said that in his area, though the work of hospitals could not be carried through without the continuing help of G.P. clinical assistants, their future was still in doubt. At the meeting the most stringent criticism was reserved, however, for the report on the G.P.'s training.[2] It was argued that the proposed three years' postgraduate training would deter people from entering practice and might impose a heavy financial burden. Furthermore, if he did study for these extra years, the practitioner should gain an income more in keeping with the specialist's. Dr. J. C. Arthur declared that what the young doctor needed was not more training but more confidence to apply the knowledge he had already gained; and if he was to enter practice with this added confidence his teachers must undergo a change of heart. More than one representative feared that the Cohen report's insistence on these further years might become the basis of action by the Ministry of Health. "Let us not," as one put it, "give the Minister another chain to fetter us." Sir Henry Cohen retorted that the best practitioners already put in the extra period of study; and the report was concerned not with politics but with education. His answer did nothing to still the prevalent disquiet. Alive to the Minister's enhanced powers, representatives are loth to give grounds for action which might in the end prove unwelcome to many in the profession. With firm rooting of this fear, constructive endeavour might be brought almost to a halt.

TRANSPOSING THE ULNAR NERVE

FROM a study of 46 cases treated at the Wingfield-Morris Orthopædic Hospital, McGowan[3] confirms the impression that in cases of traumatic ulnar neuritis and late ulnar palsy one can safely promise that anterior transposition of the nerve will prevent any further sensory or motor deterioration in the hand but one cannot guarantee any actual recovery. In 21 of her patients the symptoms had developed years after a fracture near the elbow; in 10 they were associated with osteo-arthritis of the joint (most of these patients were right-handed labourers affected on the right side); and in 3 there was recurrent dislocation of the nerve. In 2 patients there was congenital cubitus valgus and dislocation of the head of the radius, in another 3 there was local scarring after soft-tissue laceration, while in the remaining 7 no obvious primary abnormality could be found. When the clinical features of ulnar neuritis were slight at the time of operation—i.e., when there was no detectable motor weakness and only mild sensory disturbance—there was rapid complete functional recovery. In the intermediate group, with intrinsic wasting and weakness and some anæsthesia or analgesia in the hand, though

1. See *Lancet*, July 22, 1950, pp. 139, 148.
2. *Ibid*, 1950, i, 1001, 1008.
3. McGowan, A. J. *J. Bone Jt Surg.* 1950, **32B**, 293.

the hand became strong and useful and free from discomfort after the operation, slight residual weakness persisted in over half the cases and some sensory impairment in a quarter. In the severe lesions, with gross interosseous paralysis, full motor recovery was seldom obtained. Nevertheless, the results fully justified operation; there was always some muscle improvement, the function of the hand as a whole was much better, and sensation became more normal even when anæsthesia or analgesia had been conspicuous.

Evidently the operation should not be delayed if adequate return of power is wished for; and even the most advanced cases can be confidently expected to gain considerably from operation. It cannot be assumed that progressive deterioration is inevitable in the untreated case, for McGowan records that one patient, who refused operation, made a complete spontaneous recovery after $2^1/_2$ years; but this is so unlikely that operation is always advisable. As Brooks [4] says, "there is no conservative treatment."

TREATMENT OF CEREBRAL PALSY

IN young people the relief of cerebral palsy depends mainly on re-education. For teacher and taught this is a heavy undertaking; but so far no other form of treatment has been of much help. Sustained medication with the muscle relaxant, mephenesin ('Myanesin') has been tried by Frantz.[5] Spasticity was relieved little if at all; but of 16 children with athetosis 14 were clearly benefited. A surgical method of increasing cerebral circulation has been explored by McKhann and colleagues [6] in Cleveland. In 125 cases they anastomosed the common or external carotid artery with the internal jugular vein, and they noted improvement in about 35% of children with cerebral palsy, mental retardation, or convulsive disorders, and in a small proportion of adults with cerebral vascular accidents and other complications of arteriosclerosis. The procedure is reversible and seems to be relatively safe, but its initiators suggest that it deserves study as a new approach rather than as a satisfactory solution.

TOWARDS SAFER MILK

THE area eradication scheme, which began to operate at the beginning of this month, is designed to hasten reduction in the proportion of cattle infected with the tubercle bacillus, so that in fifteen years or so our dairy-herds will include no reactors. Immediate slaughter of all reactors is not feasible, because it would cause a disastrous fall in milk-supplies and serious disturbance of farm economy; the cow plays an important part in maintaining soil fertility, and some replacement stock must be bred from the tuberculin-positive.[7] Instead, selected areas, beginning in October, 1952, with two of the "cleanest"—in south-west Scotland and in south-west Wales—are to be declared eradication areas. There reactors will be slaughtered and compensation paid, and movement of cattle into these areas will be controlled; meanwhile, testing of herds is being offered without charge. In two further areas—the Scilly Isles and the Shetland Islands—all cattle are already attested. Throughout the land only about 22% of all cattle are in attested herds.

Reliable tuberculin testing will now be more than ever necessary, and there are indications that at present the results do not deserve implicit faith. Disquiet has been caused because positive results are sometimes obtained in animals which belong to home-bred herds and which, on slaughter, show no signs of tuberculosis. Misleading results may sometimes be due to a mild acid-fast bacillary infection of the skin the pathology of which is uncertain. Obscure infection of this sort is apparently not confined to animals; for acid-fast and alcohol-fast bacilli, unidentifiable by ordinary methods, have been recovered from patients with urinary infection.

As the eradication scheme develops, the effect on the incidence of pulmonary tuberculosis in man may prove unexpectedly striking; for studies in Scandinavia have shown that in rural areas as many as half the cases of phthisis may be due to the bovine organism. [8]

4. Brooks, D. M. *Ibid*, p. 291.
5. Frantz, C. H. *J. Amer. med. Ass.* 1950, **143**, 424.
6. McKhann, C. F., Belnap, W. D., Beck, C. S. *Ann. Surg.* 1950, **132**, 162.
7. See *Lancet*, 1949, ii, 1089.
8. See Francis, J. *Ibid*, 1950, i, 34.

HOSPITALS AND THE PRESS

AT its annual conference in London last month the Institute of Journalists unanimously adopted a resolution deploring "an increasing tendency for officialdom and 'red tape,' particularly in nationalised organisations, to impede the public services of the press"; and almost every speaker spoke most harshly of the hospitals. Mr. V. S. Halton claimed that when these depended on the press for much of their income they always coöperated with newspapers, and it was possible at any time to go in and get the names of people involved in accidents. "Now, under nationalisation, there is no time for the press, and the normal avenues of information are closed." Mr. S. Wadlake agreed that the atmosphere, previously cordial, had changed with the start of the National Health Service.

Doctors are trained to shun personal publicity. Moreover, they are constantly aware of their duty to preserve the confidential relation between themselves and their patients, and they are sometimes in doubt of the use to which information they give will be put. Hospitals, they rightly feel, exist to help and protect patients, whose misfortunes should not be regarded as "news." On the other hand, sometimes they are clearly bound not to withhold the facts. Thus the Minister of Health [1] has suggested that, when there is a big accident, the public is entitled to know its extent and—after the relatives have been notified—the names of the injured. Otherwise, the Minister has wisely left hospitals to decide their own public-relations policy. Often, however, no policy exists, and the amount of information given depends on the doctor who receives the inquiry. Hospitals might be wise therefore to invite local editors and their own staff to a meeting at which a policy could be worked out, and to appoint a public-relations officer—perhaps the medical superintendent where there is one—to see that this is pursued. All will wish to preserve as much as possible of the local pride and local interest which newspapers can help to engender.

MAKING THE MOST OF OUR CONGRESSES

THE Council for the Coördination of International Congresses of Medical Sciences, which is sponsored by W.H.O. and UNESCO, have now completed their first year's work. With their comprehensive advance information and tactful synthesising powers, the council have been able to arrange for many related congresses to be held in the same town within a few days of each other. Many workers have thus been able to make a fuller use of their visits abroad. The council have also been able to help the organisers of related congresses to draw up programmes which did not cover the same ground, and to provide suitable background courses for those attending the congresses. The council's *Bulletin* may be obtained from UNESCO House, 19, Avenue Kléber, Paris, XVI, and the April-July issue for this year contains a useful list of congresses which are to be held as far ahead as 1953.

THE STATE AND MEDICINE

IN his inaugural address to King's College Hospital Medical School on Sept. 28, Sir Lionel Whitby expressed his belief that, as the cost of a serious illness is now beyond the purse of an ordinary person, all civilised nations will sooner or later be obliged to set up some form of subsidised medical service; and experience seems to show that even a partial subsidy must be so large that in practice the scheme must be handled by the State. In his view medical men should therefore not oppose a State service, for it is inevitable, but rather give their minds to ensuring that individualism, which has done so much for medicine in the past, is not extinguished by too much insistence on plans and planning.

DR. S. ROODHOUSE GLOYNE, pathologist to the London Chest Hospital from 1911 to 1948, died in London on Sept. 25.

THE INDEX and title-page to Vol. I, 1950, which was completed with THE LANCET of June 24, is published with our present issue. A copy will be sent gratis to subscribers on receipt of a postcard addressed to the Manager of THE LANCET, 7, Adam Street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive indexes regularly as published should do so now.

1. See *Lancet*, 1949, ii, 1063.

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Reviews of Books

British Encyclopædia of Medical Practice

(2nd ed.) Editor: Lord HORDER, F.R.C.P., consulting physician, St. Bartholomew's Hospital, London. London: Butterworth. 1950. Vols. I and II. Pp. 719, 711. £3 per volume.

THE first edition of this work, in which diseases are considered alphabetically, began to appear in 1936; and, under the editorship of Sir Humphry Rolleston, the end of the alphabet was reached at the start of the late war in 1939. In these four years the *Encyclopædia* gained a reputation for truly covering medical disorders from A to Z; and Lord Horder, who is now the general editor, has wisely retained the same layout. Nowadays those who contribute to, or edit, such works as this often find to their chagrin that the information is partly outdated even before it is printed; but the collection from time to time of authoritative and comprehensive accounts provides a milestone by which to mark further progress, and the popularity of this particular work reflects its daily usefulness to practitioners.

Biological Actions of the Adenine Compounds

H. N. GREEN, M.A., M.D., M.SC., professor of pathology, University of Sheffield; H. B. STONER, M.D., B.SC., research assistant in the department. London: H. K. Lewis. 1950. Pp. 222. 25*s*.

Professor Green and Dr. Stoner describe investigations undertaken to assess the significance of their original observation in 1943 that adenosine triphosphate (A.T.P.) is responsible for nearly the whole of the "shock"-inducing effect of fresh skeletal muscle extract, when injected by routes other than the intravenous. After reviewing the chemistry of the adenine nucleotides and the metabolism of A.T.P. they describe in detail the effect of the purine derivatives on the cardiovascular and respiratory systems, the potentiating effect of magnesium ions, the relation between pulmonary embolism and the effect of A.T.P., and the effect of certain therapeutic agents on A.T.P. shock. They conclude with a discussion of the possible rôle of nucleotides in various pathological states. Their monograph is an impressive record of wide-ranging inquiries which (to quote Sir Edward Mellanby's foreword) should be of interest to biologists in general because it embraces most of our present knowledge of the effects produced by the presence of A.T.P. and related compounds in extracellular sites. Though mainly an account of a particular series of experiments, it surveys the relevant literature and is therefore a useful reference book.

The Rheumatic Diseases

(3rd ed.) G. D. KERSLEY, M.D. Camb., F.R.C.P., physician with care of rheumatic diseases, Bristol Royal Hospital; physician to the Royal National Hospital for Rheumatic Diseases, Bath. London: Heinemann. 1950. Pp. 143. 15*s*.

THIS book now embraces the "new rheumatology"; for, while it starts with conventional chapters introducing and classifying rheumatic conditions, it reaches endocrinology in the third chapter. The first illustration is that of steroid formulæ and the second displays the action and uses of A.C.T.H. and 'Cortisone.'

A short chapter covers rheumatic fever. The account of rheumatoid arthritis is well illustrated and up to date; the value of various forms of treatment is discussed in a critical and constructive way, and, though the use of cortical steroids is wisely omitted from the section on therapy, the investigations now in progress are of course mentioned. Specific infective arthritis is briefly but adequately described, but osteoarthritis is dismissed surprisingly quickly. Not all orthopædic surgeons would agree that, where the hip is affected in ankylosing spondylitis, arthroplasty "is usually only temporarily satisfactory." Gout is fully covered, and treatment, including hydrotherapy, is gone into in some detail. Dr. Kersley thinks that fibrositis does in fact exist, "in spite of its at present somewhat undefined pathology." The mechanism of muscular pain and the various theories of its causation are described with copious reference to the literature. It is somewhat surprising to see Bell's palsy included in the chapter on fibrositis, and to find that the old-fashioned wire splint extending from the ear to the corner of the mouth is still advocated. While sciatica receives a chapter of its own, brachial neuritis gets only a paragraph in the one on fibrositis. The last chapter covers special "treatments," ranging from dietetics through hydrotherapy, X-ray therapy, and physiotherapy to surgery. While there is much good sense and a rational approach to all the methods included, the subject cannot be satisfactorily presented in so small a space.

Surgery of Repair

JOHN F. PICK, S.B., M.M., M.D., F.I.C.S., clinical assistant, professor of surgery, University of Illinois. Philadelphia and London: J. B. Lippincott. 1949. Pp. 828. £9 9*s*. the set.

THESE two volumes make a useful addition to the surgeon's library. Perhaps rather too much (some 180 pages) of vol. I is taken up with theoretical and philosophical considerations. Next, the early treatment of a damaged part is considered, with due attention to repair of bones, blood-vessels, and nerves, and to early skin covering. Then the varieties of skin transplantation are described, not forgetting homografts in their restricted application: tube pedicles and flaps are discussed in some detail. The treatment of scars and burns is dealt with in a general way; grafts of tissues other than skin are described; and a chapter on "surgical geometrics" is especially useful, though some of the diagrams must be interpreted with caution. The second volume is regional, taking in turn the different parts of the body and the methods available for repair. An extensive section covers mandibular injuries and deformities, and there is a good section on the ear. In fact few problems in reparative surgery escape mention. As in most American books, the bibliography is enormous, and the whole work is profusely illustrated.

Letters to the Editor

TUBERCULIN SURVEYS

SIR,—In a recent tuberculin survey of a girls' grammar-school in a London suburb conducted by one of us (A. G. H.), the proportion of negative reactors was found to be 76%. The ages of the pupils ranged from 12 to 19 years and the level of tuberculinisation was remarkably uniform in each year—it was not significantly higher in the later age-groups. The flour-paper jelly technique was employed, and possibly complete Mantoux testing, up to 1 : 100, might have shown a slight increase in the proportion of positive reactors; but it would appear that between two-thirds and three-quarters of the girls have not as yet experienced their primary infection. As it is probable that the majority of them will within the next few years be working or studying in the Metropolis, a significant proportion must shortly be exposed for the first time to direct attack by the tubercle bacillus. In view of the fact that it is no longer seriously disputed that B.C.G. vaccination confers a significant degree of protection against primary tuberculosis and its sequelæ, the question presents itself whether such groups of young people should any longer be left unprotected against random tuberculous infection.

The argument against B.C.G. vaccination in this country rests largely on the hypothesis that conditions here may differ from those in Scandinavia, and that experience there cannot be held to apply in Britain until proved by a series of pilot surveys conducted over a period of years. Conditions, it is true, *are* different—there is a *greater* pool of infection in, for instance, London or Glasgow than in Oslo or Stockholm. For the tuberculin-negative group, therefore, the position is worse; the risk of infection is higher and the argument in favour of B.C.G. vaccination correspondingly stronger; for does anyone seriously contend that if it is thought unsafe for young people to live and work in the Mantoux-negative state in these two Scandinavian cities it can be anything otherwise in the conditions obtaining in most British cities?

It may be objected that in any event the majority of the inhabitants in really congested areas become Man-

toux-positive at an early age. But does anyone know what proportion is negative in any area of any city in the country? The truth is that we do not know at all accurately the level of tuberculinisation amongst our own population; and what we do know is far from reassuring. It is clear, for instance, that there is a large influx of tuberculin-negative individuals into our great cities year by year—the steady immigration from Ireland and rural Scotland into Glasgow comes particularly to mind to supplement the example of the "great wen" itself. We know, too, that an increasing proportion even of those born and brought up in cities contrive to escape tuberculous infection till late adolescence, and that infection at this age is liable to have extremely serious consequences. What we do not know is the extent of the problem, city by city, area by area, age-group by age-group. Limited pilot surveys, including the one mentioned above, reveal only a small glimpse of a complex and varying situation, and the fact that some officially approved investigations are being conducted should not be allowed to obscure the necessity for large-scale surveys in *every* area. We have now reached the stage where it should be incumbent on every health authority to ascertain the level of tuberculinisation of the population under its care. There is no insuperable difficulty about this being done expeditiously in each major centre of population; in the survey quoted above the actual application of the tests on 495 girls was carried out in two hours by a team of six people (doctor, two nurses, two teachers, clerk). School-leavers are the most obvious and probably the easiest group to start on; but clearly the factory population, the antenatal group, and others would require later investigation. The opportunity, too, should be taken to Mantoux test all Army recruits; for that matter, there would appear to be no good reason why the negative reactors should be denied B.C.G., since experience of the vaccine even in this country is sufficient at least to indicate its safety.

We must, therefore, make a determined attempt to define the problem confronting us. In so doing we shall gain much valuable information regarding the epidemiology and natural history of tuberculous infection. When we know what proportion of our young people are at risk we shall be better able to estimate their danger and to consider the rôle of B.C.G. in relation to existing facts. There are now upwards of 43,000 pulmonary tuberculosis notifications per annum in this country, with no noticeable trend towards reduction. A comprehensive effort on a national scale to reduce the figure is clearly indicated. We cannot afford to pay mere lip-service to prevention when there is available a possible preventive measure which is safe, scientific, capable of wide application, and even cheap. In this connection the following report (not, be it noted, from Scandinavia) should give cause for reflection:

> "A control program was inaugurated (in Japan) by the Supreme Command of the Allied Powers. As a part of that program, approximately 31,000,000 persons had received B.C.G. immunisation up to May, 1949. The control program has resulted in a reduction in the mean annual death-rate from 280 per 100,000 population in 1945 to 181·1 in 1948. Analysis of the deaths by age-groups indicates that the entire reduction has occurred in the age-groups immunised with B.C.G. The death-rate in non-immunised groups has not been appreciably reduced during this period. Within the immunised groups the mortality has been reduced by 88%."[1]

In view of this and other evidence accumulating in different parts of the world, can there be any advantage in delaying further a major investigation into the level of tuberculinisation of our own population?

Clare Hall Hospital, South Mimms, Hertfordshire.

A. G. HOUNSLOW
N. MACDONALD.

1. Sams, C. F. *J. Amer. med. Ass.* 1949, **141**, 527.

VITAMIN B_{12} IN PERNICIOUS ANÆMIA

SIR,—In your report (Sept. 23) of the International Congress of Hæmatology I am quoted as saying that I now give "a minimum of 60μg. [of vitamin B_{12}] weekly, increasing up to 200μg. if there are neurological complications." The truth is that for *routine purposes*, now that cheap vitamin-B_{12} concentrates are available, I usually give 60μg. every *three* weeks, with more frequent and perhaps larger doses (rarely more than 100μg. a week) for patients with subacute combined degeneration of the cord. This does not mean that smaller amounts would necessarily be inadequate. I have, in fact, some 40 or 50 patients who have been receiving much smaller maintenance doses—namely 10μg. of vitamin B_{12} or B_{12c} every two weeks. This is a special group in which the effects of vitamin B_{12} and vitamin B_{12c} are being compared; these patients have little or no neurological involvement and attend frequently so that the dose can be increased at once should the need arise. Naturally one would not advise such low maintenance doses for routine use in patients not under close observation.

Royal Victoria Infirmary, Newcastle upon Tyne.

C. C. UNGLEY.

NO TOOLS

SIR,—Your leading article of Sept. 23 has focused attention on the appalling inadequacies of some of the chest clinics in this country. As you point out, comparison with well-established and well-staffed clinics only underlines these deficiencies. The fact that some areas have been able to integrate a first-class service is the result of satisfactory negotiations between chest physicians and their local boards. Many of course have inherited well-organised dispensaries, but several efficient clinics have had to start pretty well from scratch since the inception of the National Health Service.

It would appear that in many of the less satisfactory areas the lack of progress has been due, not to the absence of foresight or planning on the part of the chest physicians, but to the refusal of hospital and regional boards to allow more than token payments to the chest services. It is surprising how many members of regional and hospital boards, both lay and medical, have an erroneous impression of the requirements and the work of an efficient chest clinic. I feel that one of the best ways to get uniformity throughout the country would be for each regional board to appoint a tuberculosis subcommittee—many indeed have one already. These committees could meet centrally and decide on the basic requirements and personnel.

If the responsible authorities in backward areas will not take action to improve their services, they will eventually be forced to, by local agitation, with all the unpleasant publicity and recrimination that this would involve.

M.R.C.P.

SIR,—The letter from "M.D." and your leading article of Sept. 23 are daggers turning in the hearts of those of us (and we are many) who lack the tools, and whose thoughts are bitter and angry at what has been for years the great betrayal—the betrayal of the tuberculous and of those who minister to them.

Let it be noted that the Paddington and Kensington clinic was built by private enterprise, not by the municipalities it serves: the blame for the inefficiency and inadequacy of tools and buildings (and oh, *what* buildings and *what* sanitation!) must lie squarely on the shoulders of medical officers of health, public health committees, and the Ministry of Health, who for thirty years or more turned a blind eye to the desperate needs of this specialty. The new health service is in no wise to blame for the legacy it inherited—a monument to the

indifference, indolence, and parsimony of official medical and lay bureaucracies which spent money on this charge upon them on two counts only: (1) pharisaically, to make clean the outside of the pot; (2) when "dispensary" buildings had become so decrepit that they were in danger of being condemned by the local sanitary inspectors.

In some areas, however, staffs have succeeded in making bricks without straw. In the Folkestone area, without adequate hospital facilities, but thanks to a helpful and loyal staff and coöperative colleagues in general practice, we have been able to maintain a service of operative or chemotherapeutic treatment or both, without recourse to sanatorium or pulmonary hospital beds for the past six years. The results have amply repaid the heavy extra work involved.

B. G. EDELSTON
Folkestone. Chest Physician.

SIR,—The readers of your leading article of Sept. 23 might like to learn what can be accomplished where a regional hospital board has an adequate plan, and where a hospital management committee is prepared to coöperate wholeheartedly in putting this plan into operation.

A little less than a year ago the East Anglian Regional Hospital Board accepted a report outlining a scheme for a comprehensive chest service for the whole region. At that time in Ipswich and East Suffolk, an area roughly forty miles square, there was no chest clinic. In one public-health department two or sometimes three half-day sessions were held weekly at which old and new tuberculous patients were seen. Radiological and pathological investigations could be arranged at a nearby general hospital. For the rest of the area patients notified as suffering from tuberculosis were visited in their homes by the district medical officer of health.

So much for things as they were. During the past few months a brick-built ward at the local isolation hospital has been adapted to serve as a central clinic. It is equipped to undertake all normal outpatient investigations and radiological examinations. Only patients requiring tomography have to visit one of three centres within a mile or two of the clinic. Five subclinics, housed in small hospitals or in premises provided by the local health authority, have been established at the main centres of population in the area. Each has an X-ray machine adequate for standard radiography of the chest; and at some, X-ray screen examinations will be possible. All but one of these subclinics will be in operation this month. Each will be staffed from the main centre in Ipswich where there are one full-time and one part-time nurse, one full-time and one part-time radiographer, a dark-room assistant, and the necessary clerical staff. There are as yet no full-time tuberculosis health visitors, but arrangements have been made so that the local health authority health visitor is able to attend the clinic session at which known tuberculous patients from her area attend.

The physician has 80 hospital beds under his supervision. The nearby sanatorium, closed during the late war because of shortage of nursing staff, is being opened as and when modernisation and staffing permit. At the moment 60 beds are occupied, and it is hoped that there will eventually be 120. An almoner has been appointed to the "chest service." She attends to the needs of all patients, whether they be inpatients or outpatients.

The local health authorities have at all times been very helpful, and schemes are afoot to develop and extend the preventive and aftercare aspects of tuberculosis. Regular "contact" examinations have been started, and among the first 200 examined, 8 new cases of active tuberculosis were discovered. Although the main centre was opened only three months ago, weekly attendance of patients now numbers 240, about one-third of whom are referred for the first time for consultant opinion. The waiting-list of patients requiring sanatorium treatment is short, but this is due only to careful selection of patients, and to undertaking, where possible, treatment in the home. Hostel accommodation for the ambulant, and often homeless, patient is urgently required, and if provided would free many hospital beds that are, by comparison, expensive to maintain.

Although we have had our "teething troubles," and "growing pains" obstruct the peaceful daily routine, one can look back upon the last ten months with a feeling of satisfaction and renewed confidence in our belief that tuberculosis can be banished within a generation.

CHARLES J. STEWART
Ipswich. Chest Physician.

PUERPERAL URÆMIA DUE TO ACUTE UPPER-NEPHRON NEPHROSIS

Sir,—In answer to Dr. Govan and Dr. MacGillivray (July 22 and Sept. 23) may I point out that the pathological effects of acute renal failure are manifest in the kidneys within about 8 hours of the initial cause? Whatever the causal mechanism and whatever the explanation, the now well-known findings merely indicate the varying degrees of degeneration and necrosis in the cortex and medulla. Subsequent effects related to continued anoxia and superimposed overhydration will be apparent in those areas which have not succumbed to cortical necrosis but have not recovered, or are not recovering, by the 10th to 12th day. These areas are, in Govan and MacGillivray's article, localised around some of the cortical glomeruli. The title of their article suggests that these affected areas caused the uræmia. Records of two of their three cases, however, indicate that on the day of death at least 1000 ml. of urine was passed, despite continued vomiting previously, and suggest that in the 24 hours before death something in the nature of 170 litres of fluid had filtered through the renal glomeruli and that nearly this same amount had been reabsorbed by undamaged or recovered nephrons. Thus it can hardly be maintained that all the proximal tubules were hydropic, but only those grossly affected by anoxia and unable to do the vital work of transferring the water back to the already diluted circulation.

It is feasible that were serial sections of such kidneys examined, in addition to completely normal nephrons, all degrees of degeneration and regeneration would be found affecting all parts of many nephrons, although in the first instance the main brunt of the damage seems to be borne by the distal convoluted tubules and hence these are the first to show signs of recovery.

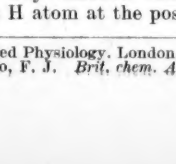
In conclusion, I never did consider that overhydration, by itself, could produce lesions anywhere in the nephron; but, superimposed on anoxic and devitalised cells—whether they be in the liver, brain, or kidney—overhydration will surely lead to hydropic degeneration. As regards Govan and MacGillivray's suggestion that the distal parts of the nephron are responsible for water and salt exchange, I would point out that, in mammals at any rate,[1] 80% of the water in the glomerular filtrate is reabsorbed in the proximal tubules, together with a proportion of the chloride.

Peterborough. D. W. BRACEY.

THEORY OF BARBITURATE ACTION

SIR,—Velazquez and Elio[2] have advanced a general theory of narcotic action, which they suggest is due to the inhibition of acetylcholine synthesis. For the action of barbiturates the following explanation is proposed.

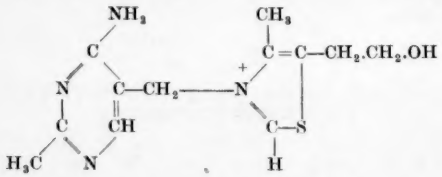
Barbituric acid consists essentially of a pyrimidine ring:



This has little if any narcotic action; but suitable substitution of the H atom at the position R will confer

1. Wright, S. Applied Physiology. London, 1945.
2. Velazquez, L., Elio, F. J. *Brit. chem. Abstr.* 1945, A III, 636.

this property. The pyrimidine ring also occurs in the pyrimidine moiety of thiamine:



Thiamine plays an essential part in the synthesis of acetylcholine; indeed it is actually produced with acetylcholine at the cut end of a peripheral nerve, more especially during stimulation of the nerve.[3]

By an extension of the Woods and Fildes theory of the action of sulphonamides by "selective inhibition," it seems likely that if a sufficient concentration of barbiturate should be present in the blood-stream, the barbiturate would combine with certain constituents of the nerve-cells and thus render them less capable of utilising thiamine in the synthesis of acetylcholine.[4] As a result of the comparative lack of acetylcholine, the general activity of the brain would be depressed. This would explain its action in the case, for example, of epilepsy.

My thanks are due to Prof. W. E. Jessop and Prof. W. R. Fearon for their advice and encouragement.

Dublin. H. W. DALTON.

INTRATHECAL TUBERCULIN

SIR,—Another possible explanation of the recovery of patients with tuberculous meningitis treated with intrathecal tuberculin (Dr. Smith and Dr. Vollum, Aug. 19) is that the local tissue reaction to tuberculin in these sensitised subjects released sufficient fibrinokinase to activate enough plasminogen to lyse the fibrin which was causing subarachnoid block. Ungar and Mist [5] reported that formation of fibrinolysin from its inactive precursor could be brought about by adding specific antigen to the serum of sensitised guineapigs. Dr. Jackson (Sept. 16), in drawing attention to the meningeal irritation that may be caused both by streptomycin and by tuberculin, does not explain the dramatic recoveries of patients already showing hydrocephalus.

CHARLES H. LACK.
Institute of Orthopædics, London, W.1.

THREAT TO A SMALL GENERAL HOSPITAL

SIR,—Mr. Howkins in his letter of July 15 is quite right. The threat to the integrity of St. John's Hospital, Lewisham, is not an isolated example.

In one hospital with which I am acquainted, it was rumoured that the obstetrical department would be moved from the main hospital to another building altogether. This dismemberment of general hospitals, thus robbing them of the benefits of specialised departments, can only be a retrograde step, as Mr. Howkins says. Whilst, on the surface, it would appear that the isolation of specialised departments in separate self-contained hospitals is good planning, it encourages over-specialisation. In the long run, this can only be detrimental to the patient, for it is the disease rather than the patient which becomes the object of treatment.

It is to be hoped that this dismemberment of general hospitals will not be proceeded with; for they are undoubtedly the mainstay of the hospital service.

London, W.1. H. H. FOURACRE BARNS.

3. von Muralt, A. *Nature, Lond.* 1943, **152**, 188.
4. Trethewie, E. R. *Aust. J. exp. Biol. med. Sci.* 1942, **20**, 9.
5. Ungar, G., Mist, S., *J. exp. Med.* 1949, **90**, 39.

In England Now

I WAS trying to compose a lucid letter to Sir Stafford Cripps the other day, when I chanced to look out of the window and saw a cat sitting on the lawn next door. He was obviously enjoying the sunshine and conducting a leisurely and dignified ablution, as behoves the sire of most of the kittens in this district. It is part of his routine to sit there each day (weather permitting) waiting for a rather boisterous and very exhausting Dalmatian puppy to be taken for a walk after tea. When the pup's unsophisticated yelps have vanished into the distance, the cat strolls indoors, inspects his saucer, and then settles down in our armchair to ruminate on mice and men before starting the serious part of his day's work. For about supper-time (again weather permitting) he sets out to do a little procreating, and if it is a warm night he may not return to our chair till dawn.

When the weather is fine, he spends his mornings and afternoons wandering round the neighbourhood, sharpens his claws on an old apple tree in the rector's garden, and takes a quiet snooze on a heap of grass cuttings. If he feels energetic he may stalk a few birds; he seldom catches any, but that does not matter, for the sport amuses him and there is always something in his saucer, if he feels a bit peckish.

When the weather is not all that he feels it ought to be, he stays indoors. There is usually a fire to sit by, or a radiator, and if the worst comes to the worst he can always lie down by the kitchen stove. When, as a result of this lack of exercise, his appetite wanes, the women of the house try to tempt him with cream and sardines or perhaps a morsel of chicken.

Though he is out a good deal, the cat has our chair to himself much more often than I do, and it is seldom that we share it. I have nearly 4000 cards in the filing cabinet in my surgery, and he reaps the benefit. He is the clever one; I am the mutt.

* * *

She was imaginative and polysymptomatic, and she complained a great deal of "fluttering and dancing" in the rectum. Diligent search failed to reveal any evidence of such terpsichorean activities, and the stools were reported as containing a normal flora. "It seems evident," wrote our psychiatrist, who finally got landed with her, "that there are fairies in the garden of her bottom."

* * *

While I was visiting the butcher, his wife bade one of her sharp Cockney sons go out to the chicken-house in the field behind the shop and pick up the eggs. The boy grumbled, as boys will. "I don't wanna go," he muttered. "I'm afraid of the cows and the nettles sting me legs." "Go on with you," said his mother, and, always prepared to support parental authority, I added, "What sort of a man do you hope to be, Derek, if you're afraid of cows and nettles?" "A sailor," he replied. He had me there.

* * *

"Woman," wrote a Peripatetic recently, "is so practical: but man, man is inspired." And how right he is! Take bed-making, for instance. For how long, do you suppose, have women made beds in the conventional manner, from below upwards? Anyone who has done it single-handed will know that this involves perambulating around the bed several times, at any rate when dealing with the bilocular, or double-bed, variety. Bed-making husbands, whose wives have taken the kids off to the seaside, should therefore note the following method. On rising in the morning, the bedclothes are reflected medially instead of caudally, as is customary. After the bath and breakfast, the bed is closed in layers from within outwards, first down one lateral border and then, exerting traction, down the other: the inferior margin is dealt with on the return journey. Thus a minimum of peregrination is required. For less particular bachelors, I have even simpler advice: if the bed is left unmade until one returns home in the evening—well, there doesn't really seem to be much point in making it at all.

News

The awards committee, under the chairmanship of Lord Moran, have now selected about 1500 specialists who are to receive distinction awards. Their names will not be published. Most of the awards of £2500 and £1500 have now been decided, but 400–500 further awards, mostly of £500, will be made shortly. Those to dental consultants have still to be considered.

At the 21st anniversary dinner of the Royal College of Obstetricians and Gynæcologists, held on Sept. 29, Prof. Hilda Lloyd, the president, announced that Sir Arthur Sims has endowed a Commonwealth travelling professorship and the Bernhard Baron Fund has given £10,000 for a travelling scholarship. These donations brought the appeal fund within sight of £100,000, and Professor Lloyd reminded her listeners that its other aims were to provide a larger home for the college, preferably on a common site with the other Royal Colleges, and to provide facilities for research. Sir John Anderson proposed The College, and Mr. G. F. Gibberd The Guests. Responding for the latter, Dr. Russell Brain, F.R.C.P., suggested that their only common claim to the hospitality of the college was that they had all been born. They were grateful for the college's postnatal interest in them and for what he might call this follow-up investigation.

Notifications of poliomyelitis in England and Wales during the week ended Sept. 23 were: paralytic 268 (291), non-paralytic 151 (187); total 419 (478). The figures for the previous week are in parentheses. For the second successive week there has been a decided fall in notifications. Uncorrected notifications for this year now total 6023. The corresponding figures for 1947, 1948, and 1949 were 6192, 1361, and 3284.

On Friday, Oct. 13, at 5 P.M., Dr. Philip Hench, of the Mayo Clinic, will lecture at the University of Edinburgh on the Present Status of Cortisone and A.C.T.H. in General Medicine.

On Monday, Oct. 16, at 4 P.M., at the Royal Faculty of Physicians and Surgeons of Glasgow, he will give the first Walker lecture, on the Effect of Cortisone and A.C.T.H. on Rheumatic Diseases.

The Secretary of State for Scotland has thanked the doctors and the nursing staff at Ballochmyle Hospital for their work at the New Cumnock disaster. Nearly 100 patients were accommodated at the hospital. The whole of the medical staff was placed on a rota and two medical officers were stationed at the pithead on 6-hour shifts throughout the 24 hours.

The attendance at the Middlesex Hospital Medical School dinner on Sept. 28 was larger than ever. Mr. E. W. Riches, in the chair, paid tribute to Middlesex men who had died during the year, and spoke of honours, distinctions, and appointments. Two women students had now qualified; the *Archives of the Middlesex Hospital* was reviving next January; and if present plans were realised, "our grandchildren or great-grandchildren will find a more commodious hospital." Sir Harold Boldero, the dean, whom Mr. Riches had described as "the mainstay of our medical school in war and peace," said that the year had been satisfactorily uneventful despite the choreiform state of external affairs. Dr. R. W. Gilliatt, whose father, Sir William Gilliatt, had preceded him as Broderip scholar in 1908, recalled how the ex-Servicemen now qualifying had merged in Middlesex their various experience in midget submarines, in the air, and in the desert: under predominantly Naval influence, Sister's bunk had become her cabin, and the lateral lobes of the thyroid were known as port and starboard. Mr. D. H. Patey proposed the chairman's health in a most spirited manner, and it was drunk in the same.

ACADEMICAL AND EDUCATIONAL

University College, London: Free public lectures (physiology of vision; chemical transmitters; protein structure). Details (stamped envelope) from Asst. Secretary, Gower-street, W.C.1.

Conjoint Board in England: Examinations start for: D.A., Nov. 10; D.T.M. & H., Nov. 15; D.L.O., Nov. 30; D.I.H., Dec. 1; D.P.M., Dec. 8.

Institute of Orthopædics: Course in diagnostic and prognostic methods in orthopædics, Nov. 6–11. Fee 7 gns. Apply Dean, 234, Great Portland-street, W.1.

Tuberculosis Educational Institute: 3-day clinical courses: Aintree, Liverpool (starts Oct. 25); Godalming, Surrey (Oct. 17 and Nov. 21); Market Drayton, Salop (Nov. 8, Dec. 13). Fees 3 gns. Apply Secretary, Tavistock House North, W.C.1.

Leeds University: Full-time Lecturer in Preventive Medicine and Public Health. Salary £900–£1350. Apply to Registrar by Oct. 21.

Liverpool University: Chair of Pharmacology. Apply to Registrar by Nov. 18.

Auckland University College, N.Z.: Chair of Obstetrics and Gynæcology. Salary £N.Z.2700. Apply to Secretary, Assoc. of Universities of the British Commonwealth, 5, Gordon-square, W.C.1., by Dec. 15.

Charing Cross Hosp. Med. Sch.: Demonstrator in Physiology. Salary £600–£750. Apply to Secretary.

Institute of Cardiology: First Assistant. Salary £1250–£1450 or £900–£1100. Apply to Dean.

LIST OF HOSPITAL VACANCIES

Central Middlesex, N.W.10.—Reg. Anæs.
Eastern, E.9.—R.H.O.; Jr. Reg.
Evelina, S.E.1.—H.S.
Fulham, W.6.—H.S. (Spec. Depts.).
German, E.8.—H.S.
Greenwich & Deptford H.M.C.—Sr. Reg. (orth. surg.).
Guy's, S.E.1.—Reg. (ophth.); Reg. (surg. thor.); Sr. Reg. (surg. thor.); Reg. (phys. med.).
Hackney, E.9.—H.S. (E.N.T.).
King Edward Mem. & Perivale Maty.—Obst. & Gyn.
London Jewish, E.1.—H.S. (H.O.).
London Chest, E.2.—2 R.H.P.s; R.S.O. (Jr. Reg. or Reg.).
London Jewish, E.1.—H.P.
Miller Gen., S.E.10.—M.O. (cas.).
Mothers' (Salvation Army), E.5.—Obst. R.M.O. (H.O., 1st post).
Middlesex, W.1.—Reg. or Jr. Reg. (rad.).
Metropolitan, E.8.—H.O. (med.); 2 H.O.s (surg.); Jr. Reg. (cas.).
Neasden, N.W.10.—R.M.O. (Reg.).
Paddington, W.9.—R.H.P.; Cas. O. (Jr. Reg.).
Queen Elizabeth, E.2.—H.O.s.
Royal Free, W.C.1.—1st Asst. (Sr. Reg.); Sr. Surg. Reg.; H.S. (orth.); Cas. O.; Anæs.; Dep. M.O. & H.P.; Sr. Med. Reg.
Royal National Throat, Nose, & Ear, W.C.1.—R.H.S.
Royal National Orthopædic, W.1.—R.H.S.
Royal Northern, N.7.—Rad.
St. Alfege's, S.E.10.—Sr. H.S.
St. Ann's Gen.—H.P. (inf. dis.).
St. George's, S.W.1.—2 Surg. 1st Assts. (Sr. Reg. or Reg.), 1 thor. surg.
St. Thomas's, S.E.1.—P.-t. Phys. (cardiac).
St. Mary's, W.2.—Med. Reg.
South London Women & Child., S.W.4.—R.M.O. (Jr. Reg.).
St. Paul's, W.C.2.—Sr. Reg.
St. Stephen's, S.W.10.—Med. Reg. (rheum.) Med. Reg. (med.).
Springfield, S.W.17.—Asst. Psych. (Sr. H.M.O.).
Tavistock Clinic, W.1.—Psych.
University, W.C.1.—Sr. Reg. (ophth.); Asst. Reg. (E.N.T.).
Westminster, S.W.1.—Asst. Phys. (Cons.) skin.

Provincial

Aylesbury. Royal Bucks.—H.S. (E.N.T. & ophth.).
Aberdeen Gen.—Reg. (gen. med.), Reg. or Jr. Reg.
Ashford, Kent. Willesborough.—H.P. (med. & O.P.).
Ashton, Hyde & Glossop H.M.C.—H.S. (orth.); Reg. (chest & T.B.).
Ashton-u-Lyne. Dist. Infy.—2 H.S.s; R.S.O. (Jr. Reg.).
Altrincham Gen.—Asst. R.S.O.
Aberystwyth Gen.—Jr. H.M.O.
Ashford, Middx.—R.H.S. (Male), gen. surg.
Bath. St. Martin's.—H.S. (gyn. & obst.); H.S.
Barnsley. St. Helen.—Obst. H.S.
Barnet Gen.—Res. Obst. Gyn. H.S.; R.H.O.
Billericay. St. Andrew's.—Obst. Reg.
Billericay. St. Andrew's.—H.S. (gen. surg. & orth.).
Birmingham. Marston Green Maty.—R.S.O. (Reg.).
Birmingham, 18. Dudley Road.—Surg. H.O.; Jr. Reg. (E.N.T.); Surg. H.O. (ear, throat, & cas.).
Birmingham 18. Dudley Road.—H.S. (E.N.T.).
Birmingham, 9. Little Bromwich.—Jr. R.M.O.
Birmingham. Royal Orth.—Locum Jr. H.M.O. (orth.).
Barrow-in-Furness. North Lonsdale.—R.H.S.
Bowdon. St. Anne's E.N.T.—Jr. E.N.T. Reg.
Bradford. St. Lukes'.—H.S. (gyn.).
Braintree. Black Notley.—Orth. H.O.
Bristol. Cossham/Frenchay H.M.C.—H.S. (neurosurg.).
Bury St. Edmund's. West Suffolk Gen.—H.S. (cas. & orth.); H.S. (gyn. & obst.).
Bury Gen.—Cas. O.; H.S.
Bromsgrove, All Saints'.—2 H.S.s; H.P.
Burton-on-Trent Gen. Infy.—H.S.
Birmingham R.H.B.—Psych. & Dep. Med. Sup.; Asst. Rad. (Sr. H.M.O.s).
Bristol. Stapleton.—R.M.O. (Jr. H.M.O.).
Bishop Auckland Gen.—H.P.
Bournemouth. Royal Victoria.—H.S. (ophth. & E.N.T.).
Burley-in-Wharfedale. Scalebor Park Mental.—2 Jr. Reg.
Brighton, 7. Royal Sussex County.—H.P.
Brighton & Lewes H.M.C.—2nd R.H.S. (E.N.T.).
Barnstaple. North Devon Infy.—Res. Cas. O.
Carshalton. St. Heller.—Reg. (med.).
Cottingham. Castle Hill & Sanatorium.—H.O.s.
Chesterfield & North Derbyshire Royal.—H.O. (cas.).
Cardiff H.M.C.—H.O.
Carmarthen. West Wales Gen.—H.S.; R.S.O.

Canterbury. Kent & Canterbury.—E.N.T. & Eye H.S.
Cheltenham. Gen. Eye & Childs.—R.M.O. (childs); H.S.
Chelmsford & Essex & St. John's.—H.S. (Spec. Depts.).
Chelmsford & Essex.—H.P.
Colchester. Essex County.—H.P.; 2 H.S.s.
Chester. City Hosp. & Royal Infy.—Med. Reg. (gen. med. & cardiac.).
Cheltenham. Sunnyside Maty.—R. Obst. O.
Chelmsford. St. John's.—H.P.
Cheddleton, Staffs. St. Edwards.—Psych. Jr. Reg. or H.P.
Cardiff. The United Cardiff.—Inter. Reg. (child hlth.); Sr. Neurosurg. Reg.
Durham County.—Reg. (surg.).
Driffield, Yorks. East Riding Gen.—H.P.
Davyhulme. Park.—Med. Reg.; Surg. (E.N.T.), Med., & Pæd. H.O.s.
Darlington Mem.—E.N.T. Reg.; Cas. O.
Dewsbury. Staincliffe Gen.—Jr. Reg. (surg.); H.P. (derm.); H.P. (with pæd.); H.O. (obst. & gyn.); H.O. (gen. surg.).
Dewsbury & Dist. Gen. Infy.—H.S.
Dundee Dist. & Royal Mental.—Res. Jr. H.M.O.
Doncaster Royal Infy.—Jr. Reg. (Cas. O.); H.S.
Doncaster H.M.C.—Jr. Reg. (chest clin.).
Edgware Gen.—R.H.P.
East Anglia R.H.B., Norwich.—Cons. E.N.T. Surg.
East Anglia R.H.B., Peterborough.—Cons. Path.
East Anglia R.H.B., St. Audry's Mental.—Sr. Reg. (psych.).
East Anglia R.H.B., Papworth.—Sr. Surg. Reg. (thor. surg.).
East Anglia R.H.B., East Suffolk & Ipswich.—Anæs. Reg.
East Anglia R.H.B., Stamford & Rutland.—Surg. Reg.
Farnham.—Asst. Surg. O. (H.O.).
Guildford. St. Lukes'.—H.O. (obst.).
Griffithstown, Mon. County.—Jr. H.M.O. (obst. & gyn.).
Griffithstown, Mon. County.—Jr. H.M.O. (orth.).
Grantham & Kesteven Gen.—H.O. (surg.).
Guildford. Royal Surrey County.—H.P.
Gateshead. Sheriff Hill I. D.—H.O. (phys.).
Great Barrow. Barrowmore.—R.M.O. (Male).
Glasgow. Western R.H.B.—Ophth. (Sr. H.M.O.); Anæs. (Sr. H.M.O.).
Hereford. Burghill & Holme Lacy.—Res. Jr. Reg. or Locum.
Horsham, Sussex. Roffey Park Rehab. Centre.—Sr. H.M.O.
Hillingdon, Middx.—H.S. (gen. surg. & genito-urinv.).
Halifax. Royal Infy.—Jr. Reg. (cas. & orth.); 1st H.S.
Halifax Gen.—H.S.
Halifax Area H.M.C.—H.P.
Haverfordwest. Pembroke County War Mem.—R.S.O.; H.S.
Huddersfield Royal Infy.—Jr. Reg. (cas.); Jr. E.N.T. Reg.; Rad. Reg.
Hull A Group H.M.C.—E.N.T. H.S.
Hull Royal Infy.—Orth. H.S.; H.P.
Hull. Victoria Sick Child.—H.S.s; H.P.
Kidderminster & Dist. Gen.—H.P.; H.S.
Leamington Spa. Warneford Gen.—R.H.S.
Leeds. Public Dispensary.—Sr. Cas. O. (Jr. Reg.).
Lincoln. Bracebridge Heath.—Jr. H.M.O.
Lincoln. Burton Road.—R.M.O. (Jr. H.M.O.).
Leeds, 9. St. James's Hospital.—Reg. (psych.); Jr. Reg. (orth.).
Lowestoft & North Suffolk.—H.S.
Leeds. Gen. Infy.—Reg. or Sr. Reg. (orth.).
Leeds. United Leeds & Leeds R.H.B.—Sr. Reg. (anæs.).
Liverpool, 14. Broadgreen.—2 H.O.s (thor.).
Mansfield, Notts. Harlow Wood Orth.—R.H.S.
Manchester R.H.B., Whittingham & Parkside.—2 Asst. Psychs.
Manchester. St. Mary's.—Obst. H.S.s; Gyn. H.S.s.
Manchester, 19. Duchess of York Babies.—H.P.
Mansfield & Dist. Gen.—Sr. H.S. (acc. & orth.).
Newport, Mon. Royal Gwent.—H.O. (E.N.T. & ophth.); H.O. (derm. & V.D.); H.O. (orth.).
Nottingham Gen.—Res. Orth. Reg. (acc. & orth.); Aural H.S.; Jr. Aural Reg.
Nottingham City.—Obst. H.S.; Res. Path. (Jr. Reg.).
Northampton Gen.—Cas. O.
Norwich. Norfolk & Norwich.—Sr. Cas. O. (Jr. Reg.).
Newcastle. Royal Victoria Infy.—Jr. Reg. (anæs.).
Newcastle Gen.—H.P.
Oxford R.H.B., Aylesbury & High Wycombe.—Anæs.
Portsmouth. St. James'.—2 Asst. Psychs. (Sr. H.M.O.).
Peterborough Mem.—Cas. & Orth. H.S.
Penrhiewtyn. Neath Gen.—R.S.O. (orth.); H.S.s; H.P.; Surg. Reg.
Portsmouth. Royal Portsmouth.—H.P.
Portsmouth. St. Mary's.—H.P.
Preston Royal Infy.—Orth. H.S.
Plymouth. South Devon & East Cornwall.—H.S. (Jr. Reg.) cas. & frac.; H.S. (obst. & gyn.); H.S.s; H.O. (anæs.).
Pontefract Gen. Infy. & Hydes.—R.S.O. (Jr. Reg.); H.P.; H.S.
Rochdale Infy.—Cas. H.S.
Redruth. Camborne-Redruth Miners' & Gen.—H.S.
Romford. Oldchurch.—R.H.O. (neurosurg.).
Rochdale & Dist. H.M.C.—Jr. Reg. (chest dis.).
Ryde. Royal I.W. County.—H.S.; H.P.
Skipton. The Hospital.—H.O.
Swansea.—Res. Cas. O.; Res. Anæs.
Stannington. St. Mary's Mental.—Reg. (psych.).
Skipton Gen.—H.S.
Scunthorpe & Dist. War Mem.—Res. Orth. H.O.
Scarborough.—R.H.S. (surg.).
Shrewsbury. Eye, Ear & Throat.—E.N.T. H.S.
South Mimms, Herts. Clare Hall.—Jr. Reg.
Shoreham-by-Sea. Southlands.—R.H.S.
Southampton. Borough Gen.—H.S. (orth. & gen. surg.); H.S. (gyn. & obst.); H.S.
Stamford & Rutland.—Cas. O. & H.P.; R.H.S.
Swindon & Dist. H.M.C.—R.H.S. (gen. surg.).
Stannington, Northumb. St. Mary's.—Sr. Reg.
Stoke-on-Trent. N. Staffs Royal Infy.—H.O. (anæs.); H.O. (orth.).
Stoke-on-Trent. Bucknall Isolation.—H.O. (med.).
Stoke-on-Trent. Longton.—H.O. (surg.).
Shrewsbury. Royal Salop Infy.—Orth. H.S./Cas. O.
Scunthorpe & Dist. War Mem.—R.H.O. (E.N.T. & rad.).
Scotland. North-Eastern R.H.B.—Diag. Rad. (Cons.).
Sheffield No. 1. H.M.C.—Jr. Med. Reg.
St. Albans. Napsbury Mental.—Locum Tenens Jr. Reg.
Sutton, Surrey. Banstead.—Reg.
Salisbury Gen.—Res. Jr. Reg. (E.N.T.).
Southport Gen. Infy.—Jr. Reg. (anæs.).
Southend-on-Sea Gen.—Res. Cas. O. (Jr. Reg.).
S.W. Met. R.H.B., St. Helier.—Sr. Surg. Reg.; Reg. (Rad.).
S.W. Met. R.H.B., Sutton & Cheam.—Reg. (surg.).
Swindon & Dist. H.M.C.—Res. Cas. O. (Cent. Cas. Dept.).
Scotland. Rosslynlee Mental.—H.O.
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